

REMARKS

Applicant thanks the Examiner for his favorable consideration of Claims 29-41, 49, 51-53, and 56. Claims 1-18 are canceled by the preceding amendments. Claims 19-66 are pending in the application.

Double Patenting

The Examiner provisionally rejected claims 1-66 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of co-pending Application No. 10/315,275 and issued U.S. Patent No. 6,796,616 (Application Serial No. 10/183,741). Applicant has included with this response a terminal disclaimer for both the co-pending application and the issued patent to overcome the double-patenting rejection. Claims 29-41, 49, 51-53, and 56, which stood rejected only under the double-patenting rejection, should now be in condition for allowance.

Claim Rejections – 35 USC §102

Claims 1-18 of the application were rejected under 35 U.S.C. § 102(b) as being anticipated by “Coal Age Operating Handbook of Underground Mining.” Applicant has cancelled claims 1-18.

Claim Rejections – 35 USC §103

Claims 19-28, 42-48, 50, 54, 55, and 57-66 were rejected under 35 U.S.C. §103 as being obvious over “Environmental Assessment of Surface Shortwall Mining” (the “Environmental Reference”). The Office Action stated:

The Environmental document teaches contour mining (“development of a bench”), and extracting mineral deposits (“removing all of the coal in that seam”). The document fails to explicitly teach creating an insertion highwall, however this would have been an obvious modification, based on geologic

conditions (see figure 20, which teaches forming an insertion highwall, for ground control). It would have been obvious to one of ordinary skill in the art at the time of the invention to have included “creating an insertion highwall” as called for in claim 19, based on ground conditions.

The Environmental Reference fails to teach or suggest all of the elements of Claim 19.

The reference does not teach *creating an insertion highwall in a portion of the highwall between a pair of endwalls*. The Office Action stated that the creation of an insertion highwall would have been an obvious modification; however, the failure of the Environmental Reference to mention or suggest *an insertion highwall ... between a pair of endwalls* highlights the differences between the methods taught by the reference and Applicant’s claimed invention. The shortwall mining method described in the Environmental Reference does not teach or suggest creating a highwall between a pair of endwalls. The endwalls of Applicant’s invention allow mining to be performed by moving between the endwalls and for the mining operation to be advanced without returning to the insertion highwall. Referring to the process embodied in Figures 19 and 20 of the Environmental Reference, the reference states that “[d]evelopment of the underground mine began by driving two entries on 60 foot centers into the hillside a total of 89 feet with a single crosscut at the end which was maintained for ventilation.” (Environmental Reference, p. 91). The presence of the endwalls in Applicant’s claimed invention allows a ventilation path to be created during the mining process, and does not require that a separate ventilation tunnel be created prior to the commencement of mining as taught by the Environmental Reference.

The Environmental Reference also fails to teach or suggest *extracting minerals deposits by mining from one endwall to another in a direction of production and advancing into the mineral reserve in a direction of mining substantially perpendicular to the insertion highwall*.

The Environmental Reference, and specifically the process referred to in FIGS. 19-22 of the reference, involves mining by tunneling a shortwall miner into the coal seam perpendicular to the highwall, returning to the highwall after each pass, and advancing in a direction of mining *parallel* to the highwall. The reference itself highlights the danger of returning to the highwall when it states that:

... fairly early in the mining process, difficulties were evidenced from a geologic peculiarity in the highwall. A "mud vein" was present which, when mining commenced on a new cut, acted much like a slickenside in allowing the highwall to slough off and onto the bench. At one point, several of the chocks were also knocked over. At this juncture, the total support line was pulled out and reinstituted a few feet down the highwall. The highwall was trimmed to 60° and a canopy was provided to protect men and equipment against rockfalls and to forestall highwall collapse.

These problems are avoided by the Applicant's claimed invention since the mining operation advances *in a direction of mining substantially perpendicular to the insertion highwall*. By not returning to the insertion highwall after each pass, highwall collapse problems such as those detailed in the Environmental Reference are avoided.

Because the Environmental Reference fails to teach or suggest all of the elements of Claim 19, Claim 19 and claims 20-28, which depend from Claim 19, are not rendered obvious in light of the reference. Accordingly, Applicant respectfully requests that the rejection of Claims 19-28 under 35 U.S.C. § 103 be withdrawn.

With respect to independent Claim 42, the Office Action further stated:

The Environmental document teaches mining the sloping surface ("development of a bench"), successively mining the mineral reserve ("removing all of the coal in that seam") and providing roof supports. The document fails to explicitly teach creating an insertion highwall, however this would have been an obvious modification, based on geologic conditions (see figure 20, which teaches forming an insertion highwall, for ground control). It would have been obvious to one of ordinary skill in the art at the time of the invention to have included

“creating an insertion highwall” as called for in claim 42, based on ground conditions.

The Environmental Reference fails to teach or suggest each of the elements of Claim 42. The reference does not teach *forming an insertion highwall in a portion of the highwall generally perpendicular to a desired direction of mining the mineral reserve, thereby forming endwalls on opposing ends of the insertion highwall*. The Office Action stated that the creation of an insertion highwall would have been an obvious modification; however, the failure of the Environmental Reference to mention or suggest *an insertion highwall ... between a pair of endwalls* highlights the differences between the methods taught by the reference and Applicant’s claimed invention. The shortwall mining method described in the Environmental Reference does not teach or suggest creating a highwall between a pair of endwalls. The endwalls of Applicant’s invention allow mining to be performed by moving between the endwalls and advancing the mining operation in the direction of mining without returning to the insertion highwall. Referring to the process embodied in Figures 19 and 20 of the Environmental Reference, the reference states that “[d]evelopment of the underground mine began by driving two entries on 60 foot centers into the hillside a total of 89 feet with a single crosscut at the end which was maintained for ventilation.” (Environmental Reference, p. 91). As with Claim 19, the presence of the endwalls in Applicant’s claimed invention allows a ventilation path to be created during the mining process, and does not require that a separate ventilation tunnel be created prior to the commencement of mining as taught by the Environmental Reference.

The Environmental Reference also fails to teach or suggest *successively mining the mineral reserve moving from one endwall to the other in a direction of production to extract*

mineral deposits therefrom, thereby forming at least one successive passage advancing in the direction of mining. The Environmental Reference, and specifically the process referred to in FIGS. 19-22 of the reference, involves mining by tunneling a shortwall miner into the coal seam perpendicular to the highwall, returning to the highwall after each pass, and advancing in a direction of mining *parallel* to the highwall. The reference itself highlights the danger of returning to the highwall when it states that:

... fairly early in the mining process, difficulties were evidenced from a geologic peculiarity in the highwall. A “mud vein” was present which, when mining commenced on a new cut, acted much like a slickenside in allowing the highwall to slough off and onto the bench. At one point, several of the chocks were also knocked over. At this juncture, the total support line was pulled out and reinstituted a few feet down the highwall. The highwall was trimmed to 60° and a canopy was provided to protect men and equipment against rockfalls and to forestall highwall collapse. (Environmental Reference, pp. 92-93).

These problems are avoided by the Applicant’s claimed invention since the mining operation advances in a direction of mining substantially perpendicular to the insertion highwall. By not returning to the insertion highwall after each pass, and by mining between the endwalls, highwall collapse problems such as those detailed in the Environmental Reference are avoided.

Because the Environmental Reference fails to teach or suggest all of the elements of Claim 42, Claim 42 and Claims 43-66, which depend from Claim 42, are not rendered obvious in light of the reference. Accordingly, Applicant respectfully requests that the rejection of Claims 42-66 under 35 U.S.C. § 103 be withdrawn.

CONCLUSION

Applicant again thanks the Examiner for his favorable consideration of Claims 29-41, 49, 51-53, and 56. Applicant respectfully submits that the pending Claims 19-66 are in condition for allowance and such a Notice is respectfully requested. The Examiner is invited to call the undersigned at the below-listed telephone number if, in the opinion of the Examiner, such a telephone conference would expedite or aid the prosecution and examination of this application.

Respectfully submitted,

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